AMENDMENTS TO THE CLAIMS

The following listing of claims will replace all prior versions, and listings, of claims in the application:

Listing of Claims:

1. – 10. (Cancelled)

11. (Currently Amended) An optical or optoelectronic or memory ~~or optoelectronic or electromechanical or piezoelectric or pyroelectric or memory~~ device comprising:

two waveguide branches, the first branch being coupled to a first micro-resonator, and the second branch being coupled to the same micro-resonator or to a second micro-resonator different from the first micro-resonator,

wherein cores of the waveguide branches and the micro-resonators comprise a ferroelectric material on a first substrate ~~and ferroelectric crystal material supported by said substrate~~,

wherein said ferroelectric crystal material has been transferred ~~as a ferroelectric layer~~ from a ferroelectric crystal ~~using the~~by a method comprising the steps of providing said ferroelectric crystal, of irradiating a first surface of said ferroelectric crystal with ions so that a damaged layer is created underneath said first surface, of bonding a block of material including said first substrate to said ferroelectric crystal to create a bonded element, wherein an interface is formed between said first surface and a second surface of said block, and of heating the bonded element and separating it at the damaged layer, so that a ferroelectric

crystal layer remains supported by the first substrate, and~~according to claim 1.~~

wherein at least one branch and/or a micro-resonator coupled to it comprises an electrode for influencing the index of refraction of the ferroelectric material, the electrode being formed in a layer parallel to the ferroelectric crystal layer and being positioned between the first substrate and the ferroelectric crystal layer.

12. (Cancelled)

13. (Currently Amended) A device according to claim ~~12~~11, wherein said electrode is arranged between said first substrate and a dielectric layer on which the ferroelectric crystal layer is arranged.

14. (Cancelled)

15. (Currently Amended) A device according to claim ~~12~~11, being a Mach-Zehnder modulator~~ comprising two waveguide branches, cores of which comprise said ferroelectric material, and wherein at least one branch comprises an electrode for influencing the index of refraction of the ferroelectric material~~.

16. (Currently Amended) A device according to claim 12, being a wavelength selective switch~~ with two waveguide branches, each branch being coupled to at least one micro-resonator, wherein waveguide cores of the waveguide branches and the micro-resonators comprise said ferroelectric material, and wherein at least one branch and/or a micro-resonator coupled to said wavelength selective switch comprises an electrode for influencing the index of refraction of the ferroelectric material~~.

17. (Previously Presented) A device according to claim 16, comprising a plurality of micro-resonator pairs or groups of micro-resonator pairs, each micro-resonator pair comprising a micro-resonator coupled to one waveguide branch and one micro-resonator coupled to the other waveguide branch, each micro-resonator pair or group of micro-resonator pairs comprising an electrode for influencing the index of refraction of the ferroelectric material, the different electrodes being separated from each other.

18. (Original) A dynamic wavelength router for routing optical signals of different wavelengths comprising a plurality of devices according to claim 17 connected to each other network-like.

19. (Currently Amended) A device according to claim ~~12~~11, being a switchable out-coupler ~~comprising an electrode for applying a periodic field to the ferroelectric material~~.

20. – 27. (Cancelled)

28. (New) The device according to claim 11, wherein said method includes the step of, prior to bonding the block to the ferroelectric crystal, fabricating said block by providing the first substrate, and applying a layer of electrically conducting material to it to form said electrode.

29. (New) The device according to claim 28, wherein the fabricating of said block further comprises the step of applying a dielectric layer to said layer of electrically conducting material, said dielectric layer forming said second surface.

30. (New) The device according to claim 11, wherein the ferroelectric crystal is a LiNbO3 or LiTaO3 or KNbO3 crystal.

31. (New) The device according to claim 11, wherein said block comprises a second ferroelectric crystal, said second ferroelectric crystal preferably being a LiNbO3 or LiTaO3 or KNbO3 crystal.

32. (New) The device according to claim 11, wherein material at the second surface has an index of refraction that is lower than the index of refraction of said ferroelectric crystal by at least 10%.

33. (New) The device according to claim 32 and wherein said material is a silicon oxide.

34. (New) The device according to claim 11, wherein the method comprises the step of chemical mechanical polishing of the first substrate prior to the bonding.

35. (New) The device according to claim 11 wherein the method comprises the step of annealing and/or polishing the ferroelectric crystal layer after the separating step.

36. (New) The device according to claim 11, wherein the ferroelectric crystal is a bulk ferroelectric crystal.

37. (New) The device according to claim 11 being a wavelength selective switch.

38. (New) The device according to claim 11 being an optical wavelength selective filter.

39. (New) An integrated optoelectronic device comprising a device according to claim 11.

40. (New) The integrated optoelectronic device according to claim 39 further comprising a parametric amplifier or frequency doubling device, fabricated using by a method of transferring ferroelectric material from a ferroelectric crystal by a process comprising the steps of providing said ferroelectric crystal, of irradiating a first surface of said ferroelectric crystal with ions so that a damaged layer is created underneath said first surface, of bonding a block of material including said first substrate to said ferroelectric crystal to create a bonded element, wherein an interface is formed between said first surface and a second surface of said block, and of heating the bonded element and separating it at the damaged layer, so that a ferroelectric crystal layer remains supported by the first substrate, the paramateric amplifier or frequency doubling device comprising a waveguide formed by a layered structure and a cladding, wherein the layered structure comprises at least two layers of a ferroelectric material arranged adjacent to each other in a layer sequence, wherein the spontaneous polarization of neighboring layers of the layer sequence differs.

41. (New) The integrated optoelectronic device according to claim 40, wherein the layered structure comprises exactly three layers of one ferroelectric material.

42. (New) The integrated optoelectronic device according to claim 41, wherein the spontaneous polarization of neighboring layers in the layer sequence is opposed.

43. (New) The integrated optoelectronic device according to claim 40, wherein the thickness of one layer of the layered structure is correlated to the waveguide configuration in a manner that a higher than fundamental mode has a node close to an interface between two adjacent layers.

44. (New) The integrated optoelectronic device according to claim 40, wherein the dimensions of the waveguide are chosen such that the waveguide contribution to the chromatic dispersion and the chromatic dispersion contributed by the ferroelectric material compensate each other in a certain wavelength range.

45. (New) The integrated optoelectronic device according claim 39, comprising a waveguide formed by a layered structure and a cladding and further comprising electrodes with a periodic pattern, so the core waveguide may be poled periodically to achieve quasi phase matching for frequency doubling or parametric amplification.